UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,125	12/31/2001	Ramkrishna Prakash	200304386-1	1059

22879	7590	06/22/2006		EXAMINER

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NGUYEN, HAI V

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 April 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5,7-17,19 and 22-32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,7-17,19 and 22-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the communication received on 07 April 2006.

2.   Claims 4, 6, 18 and 20-21 were cancelled.

3.   Claim 2 is cancelled.

4.   Claim 32 is new.

5.   Claims 1, 3, 5, 7-17, 19, and 22-32 are presented for examination.

Response to Arguments

6.   Applicant's arguments and amendments filed on 07 April 2006 have been fully

considered but they are not deemed fully persuasive. Applicant's arguments are

deemed moot in view of the following new ground(s) of rejection as explained here

below, necessitated by Applicant's substantial amendment to the claims which

significantly affected the scope thereof.

Drawings

7.   The drawing, submitted on 07 April 2006, is objected to because the typing error,

e.g., Route Node 10 instead of Router Node 10. Corrected drawing sheets in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

abandonment of the application. Any amended replacement drawing sheet should

include all of the figures appearing on the immediate prior version of the sheet, even if

only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the

appropriate figure must be removed from the replacement sheet, and where necessary,

the remaining figures must be renumbered and appropriate changes made to the brief

description of the several views of the drawings for consistency. Additional replacement

sheets may be necessary to show the renumbering of the remaining figures. Each

drawing sheet submitted after the filing date of an application must be labeled in the top

margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If

the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the

drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e)

that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the
United States before the invention thereof by the applicant for patent, or on an international application
by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the

Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a

U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore,

the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-

AIPA 35 U.S.C. 102(e)).

9.   Claims 1, 3, 5, 8-19, 22-27, and 29-32 are rejected under 35 U.S.C. 102(e) as

being anticipated by **Foster** et al. U.S patent # **7,042,877 B2.**

10.   As to claim 1, Foster discloses a server network *(Fig. 1)* comprising: a plurality of

cluster nodes *(Fig. 1, IFM switches 110, nodes 105, 115; Fig. 3A, nodes 355, 357)*

connected via a SAN *(Fig. 1, Interconnect Fabric 110)* according a SAN-based protocol;

and at least first and second router nodes *(Figs. 1, 3A, MPEXs 120)* bridging the

plurality of cluster nodes to a LAN *(Fig.1, external network 125; Fig. 3A, Ethernet network 360);* wherein the router nodes are connected to the plurality of cluster nodes via SAN according to the SAN-based protocol, and wherein the router nodes are connected to the LAN via a LAN-based protocol *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35).*

11.   As to claim 3, Foster discloses, wherein the LAN-based protocol is TCP/IP *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35).*

12.   As to claim 5, Foster discloses, wherein the SAN-based protocol is one of INFINIBAND, Next Generation I/O (NGIO), and Future I/O (FIO) *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35).*

13.   As to claim 8, Foster discloses, wherein the first and second router nodes bridges to the plurality of cluster nodes in parallel *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35).*

14.   As to claim 9, Foster discloses, wherein each router node comprises a session management agent for maintaining session information for sessions between the router node and a cluster node of the plurality of cluster nodes *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35; col. 14, line 7 – col. 17, line 47).*

15.   As to claim 10, Foster discloses, wherein each router node comprises a policy management agent for maintaining connection information and routing policies for the

plurality of cluster nodes *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35; col. 14, line 7 – col. 17, line 47)*.

16.   As to claim 11, Foster discloses, wherein each router node comprises a routing agent for maintaining connection information for the plurality of cluster nodes *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35; col. 14, line 7 – col. 17, line 47)*.

17.   As to claim 12, Foster discloses, wherein each router node comprises a filter agent for bi-directional conversion between the SAN based protocol and a LAN based protocol *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35; col. 14, line 7 – col. 17, line 47)*.

18.   As to claim 13, Foster discloses, a server network *(Fig. 1)* comprising: a plurality of cluster nodes *(Fig. 1, IFM switches 110, nodes 105, 115; Fig. 3A, nodes 355, 357)*, connected to a SAN *(Fig. 1, Interconnect Fabric 110)* according a SAN-based protocol, each of the cluster nodes to perform communication according to the SAN-based protocol *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35; col. 14, line 7 – col. 17, line 47)*; and at least one router node *(Fig. 1, MPEX 120, Fig. 3A, MPEX 300)* bridging the plurality of cluster nodes to a LAN *(Fig. 1, 105, 115; Fig. 3A, 355, 357)*, wherein at least one cluster node comprises a management node *(Fig. 1, 115; Fig. 3A, 357)* for setting routing policies on the router node *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35; col. 14, line 7 – col. 17, line 47)*.

19.   As to claim 14, Foster discloses, wherein the management node comprises a

monitoring agent for obtaining statistics from the router node *(Figs. 1, 3, col. 4, line 20 -*

col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col. 13, line 35; col. 14,

line 7 – col. 17, line 47).

20.   As to claim 15, Foster discloses, wherein a cluster node of the plurality of cluster

nodes comprises a session management agent for holding session information *(Figs. 1,*

3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11 – col.

13, line 35; col. 14, line 7 – col. 17, line 47).

21.   As to claim 16, Foster discloses, wherein a cluster node comprises a policy

management agent for maintaining routing policies for the plurality of cluster nodes

(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 10, line 59; col. 11, line 11

– col. 13, line 35; col. 14, line 7 – col. 17, line 47).

22.   As to claim 17, Foster discloses a method of bridging a remote LAN client *(Fig.*

3A, node 365) and plural SAN cluster nodes *(Figs. 1, 3A nodes 105, 110, 115, 355,*

357), comprising the steps of:

        receiving a request *(data frame)* to establish a connection from the remote LAN

client *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14,*

line 7 – col. 17, line 47);

        in response to the received request, accessing information that maps service

types *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14,*

line 7 – col. 17, line 47);

based on a service type specified by the received request and based on

accessing the information, selecting one of the plurality SAN cluster nodes *(Figs. 1, 3,*

col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17,

line 47);

receiving a LAN protocol communication from the remote LAN client *(Figs. 1, 3,*

col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17,

line 47);

transforming *(translating)* the LAN protocol communication into a SAN protocol

communication *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35;*

col. 14, line 7 – col. 17, line 47); and

sending the SAN protocol communication to the selected one of the SAN cluster

nodes *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14,*

line 7 – col. 17, line 47).

23.   As to claim 19, Foster discloses, maintaining statistical information for the SAN

cluster node *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35;*

col. 14, line 7 – col. 17, line 47).

24.   As to claim 22, Foster discloses a router comprising:

a session management agent to maintain session information for sessions with a

plurality of cluster nodes over a LAN *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9,*

line 15 – col. 13, line 35; col. 14, line 7 – col. 17, line 47);

a routing agent to maintain connection information for the plurality of cluster

nodes connected via a SAN according to a SAN-based protocol, wherein the connection

information maps service types to respective cluster nodes, each of the cluster nodes to

perform communication according to the SAN-based protocol *(Figs. 1, 3, col. 4, line 20 -*

col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17, line 47);

the routing agent to receive a service request that specified a service type, and

the routing agent to select one of the cluster nodes based on the specified service type

and the connection information *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 –*

col. 13, line 35; col. 14, line 7 – col. 17, line 47); and

a filter agent to convert between the SAN-based protocol and a LAN-based

protocol *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col.*

14, line 7 – col. 17, line 47).

25.   As to claim 23, Foster discloses, a policy management agent to maintain routing

policies *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col.*

14, line 7 – col. 17, line 47).

26.   As to claim 24, Foster discloses, wherein the connection information comprises a

policy table *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35;*

col. 14, line 7 – col. 17, line 47).

27.   As to claim 25, Foster discloses, wherein the SAN-based protocol is different

from the LAN-protocol *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13,*

line 35; col. 14, line 7 – col. 17, line 47).

28.   As to claim 26, Foster discloses, wherein the connection information further

comprises information to indicate authentications to be performed for respective service

types *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17, line 47).*

29.   As to claim 27, Foster discloses, wherein the connection information further comprises weighting factor information to indicate a proportion of service requests to be directed to a respective cluster node for a particular service type *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17, line 47).*

30.   Claim 29 is similar limitations of claims 22, 25; therefore, it is rejected under the same rationale as in claims 22, 25.

31.   As to claim 30, Foster discloses, wherein each router node stores sessions information to route data from remote LAN-clients to the cluster nodes *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17, line 47).*

32.   As to claim 31, Foster discloses a method comprising:

        receiving, by a router, a service request from a client over a LAN that operates according to a LAN-based protocol *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17, line 47);*

        in response to the service request, the router accessing connection information mapping service types to respective SAN nodes that are interconnected by a SAN that operates according to a SAN-based protocol, the SAN-based protocol being different from the LAN-based protocol *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17, line 47);* and

        in response to a service type requested by the service request and based on the connection information, the router selecting one of the SAN nodes to establish a

connection between the client and selected SAN node *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17, line 47)*.

33.   As to claim 32, Foster discloses each of the SAN nodes communicating across the SAN according to the SAN-based protocol *(Figs. 1, 3, col. 4, line 20 - col. 5, line 50; col. 9, line 15 – col. 13, line 35; col. 14, line 7 – col. 17, line 47)* .

Claim Rejections - 35 USC § 103

34.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

35.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Foster** as applied to claims 1, 3, 5 above, and further in view of **DeKoning** U.S patent #: **6,757,753 B1**.

36.   As to claim 7 Foster does not explicitly disclose wherein the second router node bridges to the plurality of cluster nodes after the first router fails-over to the second router node.

In the same field of endeavor, DeKoning, related Uniform Routing Of Storage Request Through Redundant Array Controllers, discloses (e.g. network resource backup) that *the RAID storage devices 134 may interact with other storage-related devices and systems, such as a backup system 156 and a remote data facility 158 which maintains a copy of the data from some or all of the logical volumes 122 (DeKoning, col. 5, line 45 - col. 6, line 3; col. 7, lines 25-44).*

Accordingly, it would have been obvious to one of ordinary skill in the networking

art at the time the invention was made to have incorporated DeKoning's teachings of a

second system (DeKoning, Abstract, *col. 5, line 45 - col. 6, line 3; col. 7, lines 25-44*)

with the teachings of Foster, for the *purpose of preventing the catastrophic failure of the*

data storage system and maintaining a mirror copy of the data (DeKoning, col. 5, line 45

- col. 6, line 3; col. 7, lines 25-44).

Claim Rejections - 35 USC § 103

37.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

38.   Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Foster-**

DeKoning as applied to claims 1, 3, 5 above, and further in view of **Dobberpuhl** et al.

U.S. patent # **6,754,718 B1**.

39.   As to claim 28, Foster-DeKoning does not explicitly disclose, wherein the cluster

nodes connected via the SAN are viewed by a remote client as being assigned a single

IP address. It would have been obvious to one of ordinary skill in the networking art to

conclude that remotely viewing the SAN nodes connection from a remote client

assigned a single IP address is well-known in the networking art, as evidenced in

Figures 1, 3, item 130, col. 3, lines 15-29, in Dobberpuhl et al.

40.   Further references of interest are cited on Form PTO-892, which is an

attachment to this action.

Conclusion

41.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai V. Nguyen whose telephone number is 571-272-3901. The examiner can normally be reached on 6:00-3:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hai V. Nguyen
Examiner
Art Unit 2142

THONG VU
P.E.